



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/646,849	10/17/2000	Tatsuzo Ishida	TNAB-T0158	1114
29175	7590	08/24/2005		EXAMINER
BELL, BOYD & LLOYD, LLC				FLETCHER, MARLON T
P. O. BOX 1135				
CHICAGO, IL 60690-1135			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/646,849	ISHIDA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Marlon T. Fletcher	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 0 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 07 June 2004.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3,4,6,8,9 and 11-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3,4,6,8,9 and 11-30 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date: _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/22/2000</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

1. The examiner's answer is being re-mailed to the applicant, because the answer did not contain the initials of the conferees. In order for the Board of Appeals to consider the appeal case, the initials must be present. Further, a signed IDS was missing from the case.

2. The information disclosure statement (IDS) submitted on September 20, 2000 was filed and considered. However, the initialed IDS is not in the system. The initialed IDS is being sent with this action and put into the system. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marlon T. Fletcher whose telephone number is 571-272-2063. The examiner can normally be reached on M-W, F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Marlon T Fletcher  
Primary Examiner  
Art Unit 2837

MTF  
July 22, 2005



UNITED STATES PATENT AND TRADEMARK OFFICE

---

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/646,849

Filing Date: October 17, 2000

Appellant(s): ISHIDA ET AL.

---

Jeffrey Canfield  
For Appellant

**EXAMINER'S ANSWER**

**MAILED**

AUG 24 2005

This is in response to the appeal brief filed 06/07/2004. **GROUP 2800**

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

The rejection of claims 1, 3, 4, 6, 9, and 11-30, stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

**(8) *ClaimsAppealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

4807153	Onaga et al.	2-1989
6222338	Villaret	4-2001
5245263	Tsai et al.	9-1993
6064167	Takenaka et al.	5-2000

**(10) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 3, 4, 6, 8, 9, 11-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onaga et al. (4,807,153) in view of Tsai et al. (5,245,263), Villaret (6,222,338) and Takenaka et al. (6,064,167).

As recited in claims 1, 4, 6, 9, and 23-30, Onaga et al. disclose a robot device and control method including a joint mechanism control apparatus and method as seen in figures 1 and 2 and as discussed in column 5, lines 5-8, having an actuator for

generating a rotation torque whose level depends on a drive current, connecting a first link to a second link as freely rotating on an predetermined axis, and rotating the first link on the predetermined axis based on the rotation torque output from the actuator through an output axis of the actuator as discussed in column 4, lines 36-45, characterized by comprising: electric current detection means for detecting an electric current value of the drive current of the actuator as discussed in column 6, lines 5-18, lines 48-57, column 7, lines 60-64, column 16, lines 31-34, and column 18, lines 47-62; and external force torque detection means for detecting a level of a torque by an external force applied to the output axis of the actuator based on the electric current value detected by said electric current detection means as discussed in column 6, lines 5-18, column 6, line 58 through column 7, line 2, column 15, line 30 through column 16, line 30, and column 18, lines 47-62.

Onaga et al. disclose the robot device and method including the joint mechanism control apparatus and method, characterized by further comprising: control means for controlling the actuator based on a detection result from said external force torque detection unit such that the external force applied to the output axis of the actuator can be removed as discussed in column 6, line 58 through column 7, line 2, column 15, lines 32-54, and column 16, lines 7-30.

As recited in claims 3, 8, and 14-17, Onaga et al. disclose the robot device and method including the joint mechanism control apparatus and method, characterized in that: said actuator comprises: a motor unit generating the rotation torque depending on a supplied drive current as discussed in column 6, lines 5-15; a torque amplification unit

(174, 150) amplifying the rotation torque generated by said motor unit, and transmits the torque to said output axis as discussed in column 6, lines 8-15 and lines 58-65; and motor control means for controlling said motor unit by supplying said motor unit with the drive current at a level according to externally provided control information, and said motor control unit is provided in said motor unit as discussed in column 6, lines 11-15 and lines 48-57, column 8, lines 11-14, and column 15, lines 32-45.

As recited in claims 11, 13, and 18-30, Onaga et al. disclose a robot device and method having characterized by comprising: an actuator, provided in a joint mechanism, generating a rotation torque whose level depends on a drive current for rotation-driving said arm unit on a predetermined axis; electric current detection means for detecting an electric current value of the drive current of the actuator as discussed in column 6, lines 5-18, lines 48-57, column 7, lines 60-64, column 16, lines 31-34, and column 18, lines 47-62; and external force torque detection means for detecting a level of a torque by an external force applied to the output axis of the actuator based on the electric current value detected by said electric current detection means as discussed in column 6, lines 5-18, column 6, line 58 through column 7, line 2, column 15, line 30 through column 16, line 30, and column 18, lines 47-62; and control means for controlling the actuator based on a detection result from said external force torque detection unit such that the external force applied to the output axis of the actuator can be removed as discussed in column 6, line 58 through column 7, line 2, column 15, lines 32-54, and column 16, lines 7-30.

As recited in claim 12, Onaga et al. disclose the robot device, characterized in that: said actuator comprises: a motor unit generating the rotation torque depending on a supplied drive current as discussed in column 6, lines 5-15; a torque amplification unit (174, 150) amplifying the rotation torque generated by said motor unit, and transmits the torque to said output axis as discussed in column 6, lines 8-15 and lines 58-65; and motor control means for controlling said motor unit by supplying said motor unit with the drive current at a level according to externally provided control information, and said motor control means is provided in said motor unit as discussed in column 6, lines 11-15 and lines 48-57, column 8, lines 11-14, and column 15, lines 32-45.

Onaga et al. do not teach the actuator including a current detector, a torque detector, and control means. Onaga et al. further do not disclose a pair of leg units in each of which a lower leg unit is connected to a thigh unit through a knee joint mechanism, and a foot unit is connected to the lower leg unit through an ankle joint mechanism.

However, Tsai et al. disclose an actuator (2 and 3) including control means as well as current (inherent) and torque detectors as discussed in column 9, lines 3-19 and as seen in figure 3.

Villaret is provided to more clearly show the use of torque detectors and current detectors, along with the motor, all included in an actuator case (31), wherein the actuator (31) is the controller as seen in figure 3, wherein the actuator can be used in conjunction with a robot as discussed in column 1, lines 13-17 and column 6, lines 17-24.

Takenaka et al. are provided to show the well known elements in the art, that robots comprise leg units which include a lower leg, a knee joint mechanism, a foot, and an ankle.

It would have been obvious to one of ordinary skill art at the time of the invention to utilize the teachings of Tsai et al., Villaret, and Takenaka et al. with the apparatus of Onaga et al., because Tsai et al., Villaret, and Takenaka et al., enhance the apparatus of Onaga et al. by providing the operating joint or motor with controller for controlling that joint, wherein current and torque is detected to provide control by the actuators to the joints, which inherently reduces wiring. In combination, it is believed that every element recited in the claims are met by the references. All of the references are related to the robot art and therefore, can be combined.

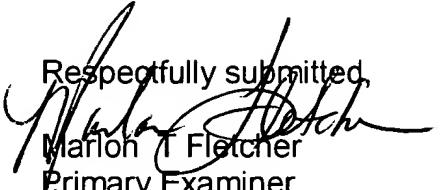
#### **(11) Response to Argument**

It is believed that the above rejection, provides the teachings of the present invention, wherein Onaga et al. provide all of the elements claimed, but fails to provide all the elements included in the actuator or actuator case. Tsai et al. provide the actuator including the controller and the motor, wherein torque is detected, which inherently provides a detection of current. However, Villaret is provided to show that the torque sensor, as well as the current sensor, can be provided in the actuator or actuator case for providing control of the actuator. In use in the robot art, the combination would avoid the compliance problem with transmission lines as taught in Tsai et al. (column 9, lines 4-7) which provides less wiring. Tsai et al. show a reduction of wiring in figure 3,

wherein the controller and motor are provided together. The applicant argues that Villaret shows the servo controller containing the elements and not the motor or actuator. However, a servo controller or mechanism can be considered an actuator, wherein the servo comprises the motor and the elements cited above used in controlling the motor, wherein all of the elements are in one case or part (31) as seen in figure 3. The applicant argues that the servo controller is not considered to be the actuator and it is a separate component as seen in figure 2. The examiner agrees that in view of figure 2, the elements (motors and encoders) are separate. However, as seen in figure 3, the servo (actuator 31) contains the motor and encoders as seen in the block diagram. Further the reference discusses (column 6, lines 44-51) that the components can be integrated into one unit. The servo (31) clearly can be considered an actuator. As stated by the applicant "when claim terms are not defined by the specification, the words of must be given their plain meaning." While applicant is arguing a housing type actuator containing the specific elements, the claims do not recite a housing. In view of claims 1 and 3, the actuator includes a motor. In the examiner's view, the broadly written claims do not define over prior art. In combination, the reference provide the teachings of the claim recitations.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
Marlon T Fletcher  
Primary Examiner  
Art Unit 2837

MTF  
July 22, 2005

Conferees  
Brian Sircus  
Michael Sherry



WILLIAM E. VAUGHAN  
BELL, BOYD & LLOYD LLC  
P.O. BOX 1135  
CHICAGO, IL 60690-1135